

Claims

1.

1 A plastic container that includes:
2 a finish, a shoulder extending from said finish, a closed base, and a sidewall
3 connecting said shoulder to said base,
4 said sidewall being of blow molded construction and having an array of
5 circumferentially spaced longitudinally extending radially recessed channels, and an array of axially
6 spaced circumferentially extending radially recessed channels intersecting said longitudinally
7 extending channels,
8 said longitudinally extending channels having radially inner portions that lie on an
9 hourglass-shaped common surface of revolution around an axis of said sidewall.

2.

1 The container set forth in claim 1 wherein said hourglass-shaped surface of revolution
2 curves continuously between said shoulder and said base.

3.

1 The container set forth in claim 2 wherein said hourglass-shaped surface of revolution
2 has a waist about halfway between said shoulder and said base.

4.

1 The container set forth in claim 2 wherein said hourglass-shaped surface of revolution
2 has a mid portion with a constant radius of curvature.

5.

1 The container set forth in claim 1 wherein land areas between said longitudinally
2 extending channels and said circumferentially extending channels lie on a common surface of
3 revolution around said axis.

6.

1 The container set forth in claim 1 wherein said longitudinally extending channels are
2 at an angle in the range of 0 to 30° to said axis.

7.

1 The container set forth in claim 6 wherein said longitudinally extending channels are
2 parallel to each other and to said axis, and are uniformly circumferentially spaced around said axis.

8.

1 The container set forth in claim 6 wherein said circumferentially extending channels
2 are parallel to each other and perpendicular to said axis, and are uniformly axially spaced from each
3 other.

9.

1 The container set forth in claim 1 wherein said circumferentially extending channels
2 have radial depths as a function of axial position along said sidewall in coordination with radial
3 depth of said radially inner portions of said longitudinally extending channels.

10.

1 The container set forth in claim 9 wherein said circumferentially extending channels
2 are concave at identical radii of curvature.

11.

1 The container set forth in claim 1 wherein said radially inner portions of said
2 longitudinally extending channels lie radially inwardly of radially inner portions of said
3 circumferentially extending channels.

12.

1 The container set forth in claim 1 wherein said sidewall is of monolayer or multilayer
2 PET construction and has a sidewall thickness in the range of 0.005 to 0.03 inch.

13.

1 A container sidewall of blow molded plastic construction, which includes:
2 an array of circumferentially spaced longitudinally extending channels that are
3 parallel to each other and to an axis of said sidewall, and
4 an array of axially spaced circumferentially extending and circumferentially
5 continuous channels intersecting said longitudinally extending channels,
6 said longitudinally extending channels having radially inner portions that lie on an
7 hourglass-shaped common surface of revolution around said axis, said hourglass-shaped surface of
8 revolution curving continuously between axially spaced ends of said sidewall.

14.

1 The sidewall set forth in claim 13 wherein said hourglass-shaped surface of revolution
2 has a waist about midway along said sidewall.

15.

1 The sidewall set forth in claim 14 wherein said hourglass-shaped surface of
2 revolution has a mid portion with a constant radius of curvature.

16.

1 The sidewall set forth in claim 13 wherein land areas between said longitudinally
2 extending channels and said circumferentially extending channels lie on a common surface of
3 revolution around said axis.

17.

1 The sidewall set forth in claim 13 wherein said circumferentially extending channels
2 have radial depths as a function of axial position along said sidewall in coordination with radial
3 depth of said radially inner portions of said longitudinally extending channels.

18.

1 The sidewall set forth in claim 17 wherein said circumferentially extending channels
2 are concave at identical radii of curvature.

19.

1 The sidewall set forth in claim 13 wherein said radially inner portions of said
2 longitudinally extending channels lie radially inwardly of radially inner portions of said
3 circumferentially extending channels.

20.

1 The sidewall set forth in claim 13 wherein said sidewall is of monolayer or multilayer
2 PET construction and has a sidewall thickness in the range of 0.005 to 0.03 inch.

21.

1 A container of blow molded plastic construction that includes:
2 a finish, a shoulder extending from said finish, a closed base and a sidewall
3 connecting said shoulder to said base,
4 said sidewall having an axis and a plurality of axially and circumferentially spaced
5 land areas with outer surfaces on a common surface of revolution around said axis,
6 said land areas being separated from each other by a plurality of circumferentially
7 spaced channels and a plurality of axially spaced channels that intersect said circumferentially spaced
8 channels,
9 said land areas being disposed in spaces between said channels.

22.

1 The container set forth in claim 21 wherein said common surface of revolution is
2 cylindrical.

23.

1 The container set forth in claim 21 wherein said land areas are rectangular as viewed
2 in side elevation.

24.

1 The container set forth in claim 21 wherein said circumferentially spaced channels
2 have radially inner portions that lie on an hourglass-shaped common surface of revolution around
3 said axis.

25.

1 The container set forth in claim 24 wherein said hourglass-shaped surface of
2 revolution curves continuously between said shoulder and said base.

26.

1 The container set forth in claim 25 wherein said hourglass-shaped surface of
2 revolution has a waist about halfway between said shoulder and said base.

27.

1 The container set forth in claim 25 wherein said hourglass-shaped surface of
2 revolution has a mid portion with a constant radius of curvature.

28.

1 The container set forth in claim 24 wherein said circumferentially extending channels
2 have radial depths as a function of axial position along said sidewall in coordination with radial
3 depth of said radially inner portions of said longitudinally extending channels.

29.

1 The container set forth in claim 24 wherein said radially inner portions of said
2 circumferentially spaced channels lie radially inwardly of radially inner portions of said axially
3 spaced channels.

30.

1 The container set forth in claim 21 wherein said sidewall is of monolayer or
2 multilayer PET construction and has a sidewall thickness in the range of 0.005 to 0.03 inch.

31.

1 A container of blow-molded plastic construction that includes:
2 a finish, a shoulder extending from said finish, a closed bottom and a sidewall
3 connecting said shoulder to said bottom,
4 said sidewall having an array of circumferentially spaced longitudinally extended
5 channels and an array of axially spaced circumferentially extending channels intersecting said
6 longitudinally extending channels,
7 said longitudinally extending channels and said circumferentially extending channels
8 having radially inner portions at differing radii with respect to an axis of the sidewall.

32.

1 The container set forth in claim 1 wherein said longitudinally extending channels
2 having radially inner portions that lie on an hourglass-shaped common surface of revolution around
3 an axis of said sidewall.

33.

1 The container set forth in claim 32 wherein said hourglass-shaped surface of
2 revolution curves continuously between said shoulder and said base.

34.

1 The container set forth in claim 33 wherein said hourglass-shaped surface of
2 revolution has a waist about halfway between said shoulder and said base.

35.

1 The container set forth in claim 32 wherein said circumferentially extending channels
2 have radial depths as a function of axial position along said side wall in coordination with radial
3 depth of said radially inner portions of said longitudinally extending channels.

36.

1 The container set forth in claim 35 wherein said circumferentially extending channels
2 are concave at identical radii of curvature.

37.

1 The container set forth in claim 31 wherein land areas between said longitudinally
2 extending channels and said circumferentially extending channels lie on a common surface of
3 revolution around said axis.

38.

1 The container set forth in claim 31 wherein said longitudinally extending channels
2 are parallel to each other and to said axis, and are uniformly circumferentially spaced around said
3 axis.

39.

1 The container set forth in claim 38 wherein said circumferentially extending channels
2 are parallel to each other and perpendicular to said axis, and are uniformly axially spaced from each
3 other.

40.

1 A method of making a hollow plastic container that includes the step of blow molding
2 a container having a shoulder, a closed base and a sidewall connecting said shoulder to said base,
3 said sidewall having an array of circumferentially spaced longitudinally extending
4 radially recessed channels, and an array of axially spaced circumferentially extending radially
5 recessed channels intersecting said longitudinally extending channels,

6 said longitudinally extending channels having radially inner portions that lie on an
7 hourglass-shaped common surface of revolution around an axis of said sidewall.

41.

1 A method of making a hollow plastic container that includes the step of blow molding
2 a container sidewall having an array of circumferentially spaced longitudinally extending channels
3 that are parallel to each other and to an axis of said sidewall, and an array of axially spaced
4 circumferentially extending and circumferentially continuous channels intersecting said
5 longitudinally extending channels, said longitudinally extending channels having radially inner
6 portions that lie on an hourglass-shaped common surface of revolution around said axis and that
7 curves continuously between axially spaced ends of said sidewall.

42.

1 A method of making a hollow plastic container that includes the step of blow molding
2 a shoulder, a base and a sidewall,
3 said sidewall having an axis and a plurality of axially and circumferentially spaced
4 land areas with outer surfaces on a common surface of revolution around said axis,
5 said land areas being separated from each other by a plurality of circumferentially
6 spaced channels and a plurality of axially spaced channels that intersect said circumferentially spaced
7 channels,
8 said land areas being disposed in spaces between said channels.